GEOGRAPHIC NEWS BULLETINS

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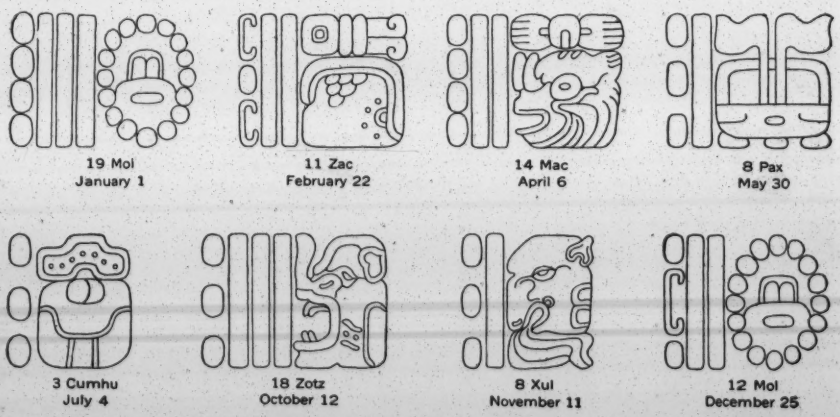

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THE MAYA EQUIVALENTS FOR SOME OF OUR DATES

Every day of the Maya year had its corresponding hieroglyph. In 1566, when Bishop Landa wrote his famous "History of the Things of Yucatan," the Maya year began on July 16 (Old Style) or July 26 (New Style). On the basis of this correlation the Mayan equivalents for some of our principal holidays are given above, the numbers in bars and dots at the left indicating the positions in the months, and the signs to the right the names of the corresponding Maya months. Many centuries before the time of Christ, when Europe still was inhabited by barbaric tribes, there developed in North America the civilization called Mayan, ruins of which now are found in Yucatan. One of the evidences of the high civilization of this people was its development of a calendar. See, in the National Geographic Magazine for February, 1922, an article by Sylvanus Griswold Morley on "The Foremost Intellectual Achievement of Ancient America" (also see Bulletin No. 2).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Simon Bolivar: The George Washington of South America

WHEN Colonel Lindbergh placed a wreath on the tomb of Simon Bolivar in Caracas, Venezuela, he was paying homage not only to a great son of Venezuela, but also to the cherished hero of four other South American countries.

Bolivar has been called by North Americans "the George Washington of South America"; but to his own people he is "the Liberator." It was under his leadership, between 1811 and 1824, that the Spanish forces were pushed out of northern South America, and independence attained. The present countries of Venezuela, Colombia, Ecuador, Peru, and Bolivia all owe their existence to the liberating armies of Bolivar. Bolivia, at first "Alto Peru," showed her gratitude by taking the name of her deliverer.

Fled Many Times to Save His Life

Bolivar was born to wealth and position in Venezuela, as was George Washington in the Colonies, and was educated among sons of nobles in Spain; but he kept his early passion for the independence of his country and gave up all privileges and comforts to carry on the fight. He did not find the struggle easy. Time and again, when Spain imported huge armies and defeated the revolutionaries, he had to flee for his life. In 1815 he went to Jamaica, spending his time writing in the cause of Venezuelan independence. Later he went to Haiti, and there, forming a small expedition, again entered the fight on the mainland in 1817.

Bolivar's drive for independence began in Nueva Granada (now Colombia), then swept to his native Venezuela. Alternately he delivered these two countries, only to see them, in the early years of the independence movement, slip back repeatedly under Spanish control.

Aim Was to Free Entire Continent

From the first Bolivar's aim embraced more than the independence of his native colony: he wanted to see all Spanish America free. In 1819 he found both Venezuela and Nueva Granada in the hands of the independents, and brought about their combination into a single nation, Colombia. Of this land of his creation he was made "Liberator President."

In 1822 he turned south, and like Napoleon and Hannibal crossing the Alps, crossed the Andes into Ecuador. There he defeated the Spanish forces, freeing his third colony. The next year he went to Peru, was proclaimed commander, and was again victorious. The battle of Ayacucho, won by Sucre, Bolivar's lieutenant, December 9, 1824, brought to a favorable end the long struggle for independence in Spanish South America. In 1825 the Liberator passed on to La Paz and organized the government of Alto Peru, now Bolivia. He even considered a movement to free Porto Rico and Cuba.

And Then He Refused Imperial Honors

At the height of his power, after the freeing of the colonies, Bolivar was urged by many to make himself "Emperor of the Andes." This suggestion he resolutely put aside. He had often declared that he had no ambition for civil office, that he wanted only the "post of danger at the head of soldiers."

© *Photograph by Wilson Popenoe.*

THE EQUESTRIAN FIGURE OF SIMON BOLIVAR IN THE PARQUE DE INDEPENDENCIA, BOGOTA, COLOMBIA

After directing the struggle of his own country, Venezuela, Bolivar assisted the patriots of Colombia, Ecuador, Bolivia, and Peru to throw off the Spanish yoke. His name is revered in northern South America as that of no other historic figure (see Bulletin No. 1).

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The Mathematics of Leap Year

LEAP YEAR day, February 29, was a reminder of man's bungling efforts through thousands of years to frame an accurate calendar. He hasn't achieved complete accuracy yet, but he is much closer to properly measuring the passage of the years than his remote ancestors were, or than were the founders of the United States.

It was twenty years after George Washington was born that the English-speaking world changed its calendar from "Old Style" to the "New Style" that we use to-day, making a difference of eleven days. The infant George Washington first saw the light on February 11, 1732; but we celebrate February 22 as his natal day, since that conforms to the corrected date.

Mohammedan New Year Spins Through Seasons

To see how far we have progressed in time measurement, one has only to consider the existing calendar of the Mohammedan world. In Christendom's calendar our New Year Day now stays pretty firmly fixed in the winter time. Not so the Mohammedan New Year. It spins merrily around the calendar, running the gamut of the seasons every 33 years.

The first calendar was inevitably a moon calendar, for the changes in the phases of the moon marked the most obvious time cycle after the short one of day and night. This unmodified moon calendar is that used by Mohammedans to-day. Because twelve of these lunar months, taken as a year, do not equal the length of a true sun year by about eleven days, the calendar gains a year in the number recorded in approximately 33 years.

Our Arbitrary Months Originated in Chaldea

The ancient Chaldeans started with the lunar year, but discovered the real year as measured by the revolution of the earth around the sun. Seeing the error when moon years were used, they took the first steps toward bringing the months and days and years into some sort of harmony. They abandoned the actual moon months and created the arbitrary months such as we have to-day. These were twelve months of 30 days each to the year, making a 360-day year. This they considered to be five days short. The error was allowed to accumulate for six years and then an extra 30-day month was inserted to take care of the 30 accumulated days. Thus they let a given date slip gradually backward from its moorings for six years and then suddenly brought it forward to its supposed proper position.

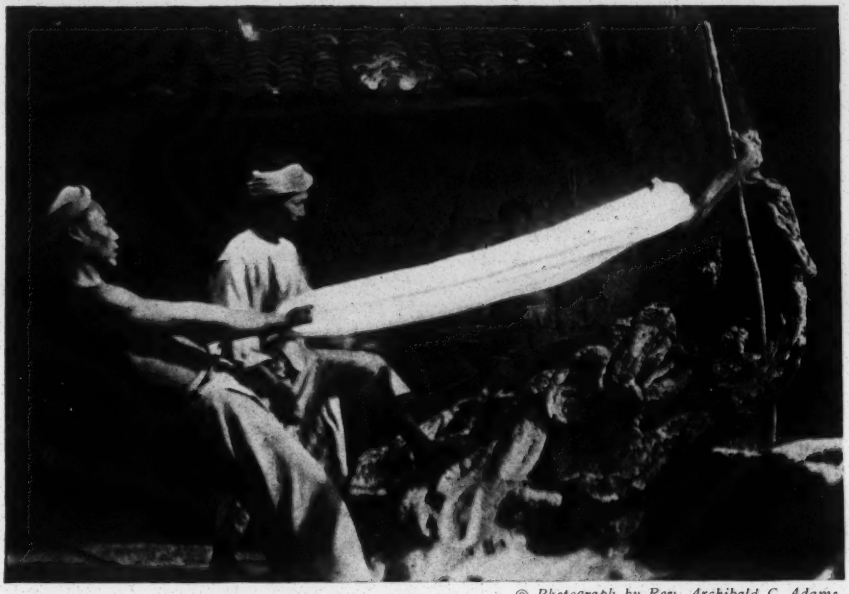
As a matter of fact, the earth travels completely around the sun in 365 days, 5 hours, 48 minutes, 45.51 seconds; so under the Chaldean method the odd hours, minutes and seconds were ignored. But they could not be abolished. They piled up to plague the Magi, the priestly keepers of the calendar, and gradually, recurring events of the year, like the solstices and equinoxes, slipped away from their proper dates.

The early Romans had first 10, then 12 arbitrary months, the latter alternately 29 and 30 days long. From the original Roman months we get the names "September," "October," "November," and "December." They mean "seventh," "eighth," "ninth," and "tenth," although they now relate to our ninth, tenth, eleventh and twelfth months.

Strife broke out in all the freed dominions, led by generals jealous of Bolivar. There was even an effort to assassinate him in 1823. Ill, he resigned all civil and military offices in 1830 and retired to Santa Marta, a small Colombian coast town. Toward the end of the year he died, crushed by the ingratitude of his lieutenants.

Death brought a realization of Bolivar's greatness, and the Venezuelan government took his remains reverently to Caracas, the capital. There they rest to-day in a handsome mausoleum, which is a national and international shrine.

Bulletin No. 1, March 26, 1928.



© *Photograph by Rev. Archibald G. Adams*

A CHINESE MOLASSES-CANDY PULL: SZECHWAN

An assistant stands ready to catch the candy if it should fall while being draped over the hook (see Bulletin No. 5).

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Steamboats Invade China's Most Remote Province

CHINA has an area approximately equal to that of the United States. But the area which travelers visit in China and from which we get most of our news of China, is not much more extensive than that of our original thirteen colonies. The rest of China lies largely away from the beaten paths of the tourist, the tradesman, and the news gatherer.

Gradually, however, the western world's search for more and more raw materials for commerce is opening up less known regions of the world—isolated areas in Africa, Asia, and particularly in China.

Bear-Tracking Along Marco Polo's Route

Kuldzha, outpost of Chinese Turkestan recently connected by Ili River steamers with Asiatic Russia, is a growing center of trade near the roof of the world. The new river port lies on the Central Asian plateau north of the Tien Shan Mountains and south of the Altai Range. Across this upland ran an ancient caravan route, from Eastern Europe to China, reported by Marco Polo on his famous journey to the Orient in the thirteenth century. Along the highway lies the bed of the partially completed Turkestan-Siberian railway.

Kuldzha is the last frontier settlement of importance in China's most western province, Sinkiang, better known as Chinese Turkestan. It lies on the Ili River about 50 miles above the point where this great stream enters Asiatic Russia, eventually to lose itself in Lake Balkash. The new Ili River steamboat line thus forms a water route between Chinese and Russian Turkestan.

Where Europe Once Obtained Its Silk

Overland trade routes lie several hundred miles to the south, through Andizhan and Tashkent on the Russian side to Kashgar and Yarkand over the Chinese border. This was the route followed by Marco Polo, whose descriptions of the country in his famous "Travels" are being corroborated by modern discoveries. The great Venetian himself merely followed a trail long beaten smooth by the silk caravans from China on their way to trade with European merchants at Constantinople.

Between this land route and the Ili River to the north are many low mountain passes through some of which engineers state will lie the future shortest transcontinental railway from Calais to Peking. A Russian railroad already has penetrated to within 300 miles of the Ili. Headwaters of this river and its tributaries tap the rich Chinese region of Sungaria.

Where the Women Go Unveiled

Kuldzha was built by the Chinese on the site of the ancient Sungarian capital and, like all frontier towns, has had a chequered career. It was held for a time by Russians and still has many Russian inhabitants. Chinese make up the merchant and official classes. The bulk of the population, estimated at more than 12,000, is composed of a mixture of races of Central Asia, of Turkish and Mongolian strains. They are Mohammedan in religion, and two large Mohammedan mosques in the Chinese style of architecture are outstanding buildings of the city.

Due to Chinese influence, or to the fact that the country was at one time

UMI

The twelve months of 29 and 30 days gave the Romans a year 354 days long. Then superstition took a hand: they added one day for luck. The year was still more than ten days short, so every second year an additional month was added, of a length decreed by the priests or pontiffs. And there is where graft entered into the making of the calendar. Days would be dropped out to favor some influential creditor, or months would be lengthened to increase some office holder's tenure.

Why a Leap Year Appeared

In 46 B. C. Julius Caesar, with the help of astronomers, gave the calendar its greatest reform up to that time, by the creation of leap year and leap year day. He gave 31 days to each of six of the months and 30 days to the alternate months, except February, which ordinarily received 29. This gave a year of 365 days. He figured that there were 6 hours left, and that by adding an extra day every fourth year—which we have come to know as leap year—he would keep the days exactly in accord with the year.

This approximation of Caesar's was the closest ever made up to that time; but the six hours which he took as the excess were just 11 minutes and 14.49 seconds too much to fit the facts. The year, which heretofore had been figured too short, became for the first time too long. The old year lasted a little longer than it should and so lapped over a bit into territory that should have been recognized as that of the new year. Astronomical events, therefore, like the winter solstice, marked supposedly by Christmas, fell on earlier and earlier dates. The solstice was separated more and more from Christmas Day. Similarly New Year's Day moved farther into winter and toward spring.

Had Fourteen Days "Left Over"

By 1582 the accumulated error amounted to 14 days. But it was only 10 days in error from the situation at the time of the meeting of the church council of Nice in 325 A. D. So when Pope Gregory turned the calendar back in 1582 he turned it not to the position in Caesar's time but to that in 325 A. D. As a result Christmas still falls four days after the winter solstice.

After correcting the calendar, Pope Gregory made a change in the leap year arrangements so that the calendar would not again creep ahead approximately 11¼ minutes a year. He arranged to have three leap year days omitted every 400 years. This was a more nearly accurate calendar than that of Caesar, but still there is a slight discrepancy amounting to nearly three hours in 400 years, or slightly more than 44 minutes per century.

What Will Happen in the Year 4844

In about 3,261 years after the Gregorian correction, the calendar, in spite of the usual inserted and omitted leap years, will be in error by one day, so that an extra leap year day will have to be omitted. It is probable, therefore, that the year 4844, although supposedly a leap year, will have only 28 days in its February—if February and the present calendar survive that long.

The English expression, "leap year," is rather an indirect one. It refers to the fact that after February 29 a given date "leaps over" an extra day. Thus March 1, 1926, fell on Monday and March 1, 1927, on Tuesday; but March 1, 1928, "leaped over" to Thursday. In the languages derived from the Latin, and in scientific circles in English, leap year is known by a variant of the old Roman derived term, "bissextile year." The extra day inserted by Julius Caesar was placed between the 24th and 25th of March, the latter known as *sexto calendas*. The extra day was therefore known as *bis-sexto calendas*.

One of the most picturesque expressions for leap year occurs in Swedish—"Skottar." It means literally, "sprout" or "shoot" year and carries the idea that an extra day has sprouted on the year.

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Christmas Was Very Sultry; But the Radio Worked Well

CHRISTMAS DAY was hot but enjoyable, the electric refrigerator is keeping the party in fresh springbok meat and other delicacies, and the radio is pulling in programs from Johannesburg, Cape Town and other South African stations.

These are some of the news items contained in a recent letter from the National Geographic Society Observatory in South West Africa in cooperation with the Smithsonian Institution.

A Remote Radio Set

The radio set, sent by the National Geographic Society as a Christmas gift to the "weather explorers" who are isolated on the desolate Mt. Brukkaros, in a Hottentot reservation, 60 miles from the nearest white habitation, helps pass many a long evening for the station workers after the day's observations are done and the evening's computations are made.

"The refrigerator," writes W. H. Hoover, in charge of the station, "has been in operation for some time, and thus far we have had no trouble with it. At least part of the operating cost will be balanced by the fact that we are able to keep fresh fruit, vegetables and meat for several days, whereas last year it was necessary to use canned goods most of the time and canned goods are very expensive in this country.

"We also are able to have a tray of ice or ice cream once in a while, which is rather good in the evening after a day when the temperature has been 100 degrees."

The Christmas celebration was planned largely for little Miss Betty Hoover, less than three years old, daughter of Mr. Hoover, who went out with her father for the four-year period of the observations. For Christmas she received two dolls from donors she did not know, one from London and one from New York, who had read in the newspapers of her going out with the expedition.

The Leopards Stayed Away

The radio arrived the day before Christmas, in time for the party, where the guests were "neighbors" from Keetmanshoop, 60 miles away, who brought along a turkey for the Christmas dinner, Mr. Hoover wrote. Two of the visitors were sons of a member of the South West Africa Parliament. From the State's meteorological station at Windhoek came boxes of cakes; and the leopards which, some time ago, raided the explorers' chicken pen, did not seek to maraud the holiday larder.

But the big scientific news of the letter is contained in paragraphs which run like this:

"Dec. Short: S15, S-5, U4. Long S1. Total 25."

All of which is a scientific shorthand way of giving the monthly average of the solar observations, and each of these cryptic figures represents many hours of painstaking observation and calculation. When four years of such observation and computation have been completed a table will result which, it is expected, will give science another tool in its search for a means of making long-range weather forecasts.

Buddhist, women of Kuldzha are to a large extent unveiled and enjoy great freedom. Their gaily colored costumes give a cheerful note to the drab monotony of a city of mud-walled, mud-roofed houses, intersected by streets that are veritable quagmires of mud and filth. Chinese officialdom lives in an old walled Chinese town. Sanitary conditions as known in the west are non-existent.

Where You Can Buy a Wapiti Horn

The chief foreign element is Russian. Trade in foreign goods is carried on by Russian merchants, who obtain brick tea, paper, skins, and grain in return. Among the chief articles of commerce are the horns of the wapiti, a deer whose antlers when ground to a powder are highly prized by the Chinese as "medicine." Big game hunters from America and Europe have experienced difficulty in persuading the natives that antlers they seem to prize so highly are not to be used for this purpose when carried back to New York or London.

The valley of the Tekes River, a tributary of the Ili, is a noted big game country and has been visited recently by expeditions of American hunters and naturalists in search of the Ovis Poli, or Marco Polo sheep, a giant mountain variety first described to an incredulous public by the doughty Venetian. The route by caravan from Kashmir in Northern India sometimes followed by expeditions to Chinese Turkestan is more hazardous and difficult than the present Russian approach by way of the Ili River and Kuldzha.

Before steamers were introduced on the Ili boats were ferried across by swimming horses which often died of exhaustion and freezing in the icy waters.

During many centuries, because of transportation difficulties, Sungaria was little visited, and it was probably from this region in Central Asia that the fabulous medieval stories of the Kingdom of Prester John originated. To this land of fable the traveler now rides on the deck of a modern river steamboat.

Bulletin No. 3, March 26, 1928.

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CANE FOR WICKER CHAIRS IN WHICH THE READER MAY EVENTUALLY SIT

This boatman pursues his work in the throbbing harbor of Shanghai, which has an estimated population of 1,500,000 and is the chief port of the Province of Kiangsu, the most densely populated political unit in the world.

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Lübeck, the Candy Capital of Germany

THE UNITED STATES is the foremost sugar-consuming and candy-eating country of the world; and each year our candy makers report a greater output.

Boston, Massachusetts, home of history, also is an economic pioneer in the American manufacture of candy. No American city, however, is so widely known as a "candy center" as Lübeck, Germany, where "Marzipan" is made. That confection is almost a monopoly of that city. It is made of sugar, almonds and rose oil, with some flour, into flat cakes, ornamented with bouquets of candied fruits.

Lübeck had vaudeville clubs similar to our Rotary, Kiwanis and Civitan groups, labor unions and giant trusts in the fourteenth century.

Once the most aristocratic of the three German free cities, Lübeck swung over, in its 1920 constitution, to a government wholly responsible to the people.

"Head of 72 Cities"

In the middle ages Lübeck signed herself "Head of the 72 cities." That was when she was the virtual capital of the Hanseatic League. The title was no empty boast. Scotland offended her in 1412, and Lübeck ordered all trade with Scotland stopped. Bruges besought a remission of this order because she sorely needed Scotch wool. It took four years to raise the embargo. A little later mighty Spain fell under a similar ban.

This league, though a tyrant trust, accomplished one good which affects every person who buys at a reputable store to-day. It set a high standard of trade honesty.

Pioneer in Honest Merchandising

It pioneered the way for fair prices, accurate labeling of goods, standard measures, and other principles which are accepted as fundamental to-day throughout the western world.

In a Lübeck churchyard lies Till Eulenspiegel, or Tyl Owlglass, who, were he alive to-day, would be the top-liner, billed as "the season's sensational sleight-of-hand artist, acrobat, and comedian just imported from continental music halls." He was the fourteenth century Chevalier, performed frequently in Lübeck, and died there in the poorhouse.

Candy and Flowers Distinctive

The dainty confection known as "Marzipan" is characteristic of the quaint little Lübeck of 1923, with its many flower beds, extending from the station to the squat double tower, the old City Gate. It is small to-day, in comparison with its sister German cities, but a consul of 1688 reported that Hamburg had 1,250 dwellings; Leipzig, 3,240; Berlin, 5,200, and Luebeck, 6,500.

Among many renowned buildings the City Hall probably was the most popular with travelers, because of its excellent food and cooling drinks.

A large boulevard, lined with the beautifully dignified, well-preserved, clean houses of old Lübeck families, stretches to the sea.

Formerly Lübeck traded principally with Sweden, Finland, Northern Rus-

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THE RUINS OF AN INDIAN OBSERVATORY IN JAIPUR, INDIA

This was built by the great Maharaja, Jai Singh II, who in 1728 founded the city of Jaipur. He was one of the eminent mathematicians and astronomers of his day, and monuments to his interest in these sciences are to be found in many places (see Bulletin No. 2).

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THE MOUTHPIECE OF THE CUP OF BRUKKAROS MOUNTAIN, SOUTH WEST AFRICA

The South African Solar Radiation Observatory, sponsored by the National Geographic Society and the Smithsonian Institution, is located just over the ridge to the left. The top of Brukkaros Mountain is cuplike, and the only break in its rim is this V-shaped opening, through which the observers gain access to their station. In the right foreground may be seen a pool which collects drainage from the surrounding slopes and provides the only water supply for miles around.

sia, and Lithuania. During the war even when the fighting was fiercest on the western front, it smuggled in some little foodstuff from the northern countries. It is now, as in olden times, importing some products from the north, mainly fish.

Before Prussia put its hands on all the old Hansa harbors and Free Cities, Lübeck paid no import taxes, which made living cheap. Of course these privileges long since expired.

Representatives of the old merchant families, as well as the many artists, musicians and painters, have the quaint manner of the slow northern German. They are innately honest, thorough and secretive. In the surrounding country places are numerous settlements of painters. In the flat landscape they stand out pleasantly in the moist atmosphere, with their low-thatched or red tile roofs. All are surrounded by neat flower gardens.

Like all the northern harbor cities, Lübeck is the home of many sailors, and they, the most daring of the population, enlisted heavily in the German marine service.

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© *Photograph by the Morden-Clark Asiatic Expedition*

THE "ARABA" IS THE HEAVY TRANSPORT VEHICLE FOR SINKIANG, CHINA

From two to five horses pull these slow carts. If five are used, loads are well balanced over the axle, so that the wheel horse between the shafts carries little weight (see Bulletin No. 3).